



भारतीय मानक ब्यूरो

(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)

BUREAU OF INDIAN STANDARDS

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Reference : MSD 03/T-132

Date : 09 July 2024

TECHNICAL COMMITTEE : Statistical Methods for Quality , Data Analytics and Reliability, MSD 03

To,

All concerned

Dear Madam/Sir,

The following document has been prepared by the Statistical Methods for Quality , Data Analytics and Reliability Sectional Committee, MSD 03. Please [click here](#) to view the document.

Document Number : MSD 03 (26006) WC

Title of the document : Measurement uncertainty for metrological applications -- Repeated measurements and nested experiments

Document Type : New Indian Standard

This document has following salient features which may require specific attention for your valuable comments:

- 1) This Technical Specification follows the approach taken in the Guide to the expression of the uncertainty of measurement (GUM) and establishes the basic structure for stating and combining components of uncertainty. To this basic structure, it adds a statistical framework using the analysis of variance (ANOVA) for estimating individual components, particularly those classified as Type A evaluations of uncertainty, i.e. based on the use of statistical methods. A short description of Type B evaluations of uncertainty (non-statistical) is included for completeness.*
- 2) This Technical Specification covers experimental situations where the components of uncertainty can be estimated from statistical analysis of repeated measurements, instruments, test items or check standards.*
- 3) It provides methods for obtaining uncertainties from single-, two- and three-level nested designs only. More complicated experimental situations where, for example, there is interaction between operator effects and instrument effects or a cross effect, are not covered.*
- 4) This Technical Specification is not applicable to measurements that cannot be replicated, such as destructive measurements or measurements on dynamically varying systems (such as fluid flow, electronic currents or telecommunications systems). It is not particularly directed to the certification of reference materials (particularly chemical substances) and to calibrations where artefacts are compared using a scheme known as a "weighing design". For certification of reference materials, see ISO Guide 35[14].*
- 5) When results from interlaboratory studies can be used, techniques are presented in the companion guide ISO/TS 21748[15]. The main difference between ISO/TS 21748 and this Technical Specification is that the ISO/TS 21748 is concerned with reproducibility data (with the inevitable repeatability effects), whereas this Technical Specification concentrates on repeatability data and the use of the analysis of variance for its treatment.*
- 6) This Technical Specification is applicable to a wide variety of measurements, for example, lengths, angles, voltages,*

resistances, masses and densities.

Please examine the document and share your comments regarding further improvement in the document.

Last date for sharing the comments is : 08 August 2024

The comments should be shared in the prescribed template through this portal only; and the comments so received shall be taken up by the Sectional Committee for necessary action. For any other query, please write an email at msd@bis.gov.in to the undersigned at Bureau of Indian Standard, Manak Bhawan, 9, Bahadur Shah Zafar Marg, New Delhi.

In case no comments are received, we would presume your approval of the documents. However, in case we receive any comments on the document, the same shall be put up to the Sectional Committee for necessary action.

Thanking You,

Yours faithfully,
(ANUJ SWARUP BHATNAGAR)
Head (Management and Systems Department)
Email: msd@bis.gov.in



व्यापक परिचालन में मसौदा(दे)

हमारा सन्दर्भ : MSD 03/T-132

दिनांक : 09-07-2024

तकनीकी समिति : Statistical Methods for Quality , Data Analytics and Reliability Sectional Committee, MSD 03

प्राप्तकर्ता : रूचि रखने वाले सभी निकाय

महोदय/या,

निम्नलिखित मसौदा तैयार किया गया है :

प्रलेख संख्या : MSD 03 (26006) WC

शीर्षक :

कृपया इस/इन मानक(को)/संशोधन(नो) के मसौदे(दो) का अवलोकन करें और अपनी सम्मतियाँ यह बताते हुए भेजें कि यदि ये मानक(को) के संशोधन(नो) के रूप में प्रकाशित हो तो इन पर अमल करने में आपके व्यवसाय अथवा कारोबार में क्या कठिनाइयां आ सकती हैं।

सम्मतियाँ भेजने की अंतिम तिथि : 08 August 2024

सम्मतियाँ, यदि कोई हों तो, कृपया यहाँ क्लिक करके ऑनलाइन पोर्टल के माध्यम से ऊपर दी गयी अंतिम तिथि तक दर्ज कराएं।

यह/ये प्रलेख भारतीय मानक ब्यूरो की वेबसाइट www.bis.gov.in पर भी उपलब्ध है/हैं।

धन्यवाद।

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